

REVISED June 2002

Water Quality Subcommittee

**RECOMMENDED TVA POLICY
ON IMPROVING BIODIVERSITY IN THE
TENNESSEE RIVER SYSTEM**

Approved by the
Regional Resource Stewardship Council
on October 26, 2001

BACKGROUND

Biodiversity is defined as the totality of genes, species, and ecosystems in a region or the world. Implicit in the concept is the interlocking web of dependencies of the naturally occurring species in a functional ecosystem. The southeastern U.S. is globally recognized as one of the “hotspots” of native aquatic biodiversity, with about 90% of the world’s species of mussels and crayfishes, about 73% of the aquatic snails, and about 50% of the freshwater fishes of the continental United States. Nowhere is this truer than in the Tennessee River with its diverse assemblage of fishes, amphibians, mussels, and other invertebrates. The Tennessee River system is home to about 230 species of fishes and 100 species of mussels, many of which are endemic to the watershed. The diversity is concentrated in the upper Tennessee Basin, with about 150 native fish species and 85 mussel species.

However, about a dozen fish species are federally listed as endangered or threatened and about 65 other species are listed under management categories used by the states. About 30 mussels have been extirpated from the Tennessee River system, of which about a third are considered to be globally extinct. Twenty-eight mussels are under federal protection, and 56 are listed by the states. Other invertebrates are less well known, but the Tennessee River system also claims two crustaceans and four snails under federal protection.

These reductions in biodiversity stem largely from the habitat alterations associated with reservoir impoundment. Flow disruptions caused by dams and diversions alter normal river functions by changing water temperature and chemistry, by stopping the flow of nutrients and sediment downstream, by interfering with the upstream and downstream movement of fish and other organisms, and by choking gravel and cobble substrates with sediments.

The Tennessee Valley Authority, as both the cause of the habitat alterations responsible for the decline in the Tennessee River system’s aquatic biodiversity and the lead federal agency responsible for the maintenance and health of the system, has an obligation under

both the Clean Water Act and the Endangered Species Act to protect and restore the native biodiversity of the waters under its jurisdiction, within the constraints imposed by its other statutory mandates.

TVA has taken some significant steps in that direction. It has established a Natural Heritage Project, which works toward identifying and protecting the Tennessee River's native species. It participates on the multi-agency Southeastern Imperiled Fishes Recovery Committee. TVA's Watershed Teams work to protect aquatic habitat in streams, rivers, and reservoirs. TVA's Reservoir Releases Improvement program has restored more natural flow regimes in regulated river reaches and raised the dissolved oxygen levels in a number of reservoirs, thereby improving conditions for aquatic life below those dams. And TVA has made responsible use of its regulatory authority under Section 26A of the TVA Act and the National Environmental Policy Act to avoid, minimize, and mitigate for adverse environmental impacts associated with permitted activities.

Recommendation

The Water Quality Subcommittee affirms the importance and priority insofar as practical of protecting the Tennessee River system's existing aquatic biodiversity and restoring its historical biodiversity; therefore, we recommend TVA take the following actions:

1. Maintain the current levels of biodiversity in the Tennessee River system by meeting its obligations under the Clean Water Act and the Endangered Species Act, by continuing its existing efforts on behalf of native species biodiversity, and by adopting policies to not knowingly undertake activities that would jeopardize the continued existence of native species insofar as practical.
2. Improve the biodiversity of the Tennessee River system by considering native species' habitat needs when planning and implementing river operations and through the use of TVA regulatory tools.
3. Partner with other agencies, organizations, and stakeholders to identify needs and implement strategies that will improve biodiversity.
4. Initiate planning and actions for the improvement of biodiversity by taking the leadership role with its partners in the Tennessee Valley.
5. Manage TVA lands and waters as examples of responsible stewardship that protects and/or improves the region's biodiversity.
6. Sustain TVA's preeminent ecological expertise and data collections; and preserve TVA's institutional memory by documenting the history of TVA's ecological contributions to science and the Tennessee Valley.
7. Engage in a public awareness campaign to make Tennessee River Valley residents aware of the extraordinary native biodiversity of the region and TVA's stewardship efforts.
